

## SEQUENCE LISTING



#5

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<120> VECTORS FOR EXPRESSING HETEROLOGOUS PEPTIDES AT THE AMINO-TERMINUS OF POTYVIRUS COAT PROTEIN, METHODS FOR USE THEREOF, PLANTS INFECTED WITH SAME AND METHODS OF VACCINATION USING SAME

<130> 1686/4

<140> 09/963,761  
<141> 2001-09-27

<150> US 60/253,136  
<151> 2000-11-28

<160> 33

<170> PatentIn version 3.1

<210> 1  
<211> 837  
<212> DNA  
<213> Zucchini yellow mosaic virus

<400> 1	60
tcaggcactc agccaaactgt ggcagatgct ggagctacaa agaaagataa agaagatgac	60
aaaggaaaaa acaaggacgt tacaggctcc ggctcaggtg agaaaacagt agcagctgtc	120
acgaaggaca aggatgtgaa tgctggttct catggaaaa ttgtgcccg tcttcgaag	180
atcacaaaga aatgtcatt gccacgcgtg aaaggaaatg tgatactcga tattgatcat	240
ttgctggaat ataaaccgga tcaaatttag ttatataaca cacgagcgtc tcattcagcag	300
ttcgctctt ggttcaacca ggttaagacg gaatatgatt tgaacgagca acagatggga	360
gttgtaatga atggtttcat ggttgggtgc attgagaatg gcacttcacc cgacattaat	420
ggagtgtggg ttatgatgga cggaaatgag caagttgagt atcccttgaa accaatagtt	480
gaaaatgcaa agccaaacgt gcggcaaata atgcatttcatt tttcagatgc agcggaggca	540
tatatagaga tgagaaatgc agaggcacca tacatgccga ggtatggttt gcttcgaaac	600
ctacggata ggagtttagc acgatatgct tttgatttct atgaagtcaa ttctaaaact	660
cctgaaagag cccgcgaagc tggtgcgcag atgaaagcag cagctcttag caatgtttct	720
tcaaggttgt ttggccttga tgaaaatgtt gccaccacta gcaagacac tgaacggcac	780
actgcacgtg atgttaatag aaacatgcac accttactag gtgtgaatac aatgcag	837

<210> 2  
<211> 279  
<212> PRT  
<213> Zucchini yellow mosaic virus

<400> 2

Ser Gly Thr Gln Pro Thr Val Ala Asp Ala Gly Ala Thr Lys Lys Asp  
1 5 10 15

Lys Glu Asp Asp Lys Gly Lys Asn Lys Asp Val Thr Gly Ser Gly Ser  
20 25 30

Gly Glu Lys Thr Val Ala Ala Val Thr Lys Asp Lys Asp Val Asn Ala  
35 40 45

Gly Ser His Gly Lys Ile Val Pro Arg Leu Ser Lys Ile Thr Lys Lys  
50 55 60

Met Ser Leu Pro Arg Val Lys Gly Asn Val Ile Leu Asp Ile Asp His  
65 70 75 80

Leu Leu Glu Tyr Lys Pro Asp Gln Ile Glu Leu Tyr Asn Thr Arg Ala  
85 90 95

Ser His Gln Gln Phe Ala Ser Trp Phe Asn Gln Val Lys Thr Glu Tyr  
100 105 110

Asp Leu Asn Glu Gln Gln Met Gly Val Val Met Asn Gly Phe Met Val  
115 120 125

Trp Cys Ile Glu Asn Gly Thr Ser Pro Asp Ile Asn Gly Val Trp Val  
130 135 140

Met Met Asp Gly Asn Glu Gln Val Glu Tyr Pro Leu Lys Pro Ile Val  
145 150 155 160

Glu Asn Ala Lys Pro Thr Leu Arg Gln Ile Met His His Phe Ser Asp  
165 170 175

Ala Ala Glu Ala Tyr Ile Glu Met Arg Asn Ala Glu Ala Pro Tyr Met  
180 185 190

Pro Arg Tyr Gly Leu Leu Arg Asn Leu Arg Asp Arg Ser Leu Ala Arg  
195 200 205

Tyr Ala Phe Asp Phe Tyr Glu Val Asn Ser Lys Thr Pro Glu Arg Ala  
210 215 220

Arg Glu Ala Val Ala Gln Met Lys Ala Ala Leu Ser Asn Val Ser  
225 230 235 240

Ser Arg Leu Phe Gly Leu Asp Gly Asn Val Ala Thr Thr Ser Glu Asp  
245 250 255

Thr Glu Arg His Thr Ala Arg Asp Val Asn Arg Asn Met His Thr Leu  
260 265 270

Leu Gly Val Asn Thr Met Gln  
275

<210> 3  
<211> 20  
<212> DNA  
<213> Zucchini yellow mosaic virus

<400> 3  
catttccttt cacgcgtggc 20

<210> 4  
<211> 21  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding Hexa-Histidine with a Serine at its  
N'

<400> 4  
tcacaccatc accatcacca t 21

<210> 5  
<211> 7  
<212> PRT  
<213> Artificial

<220>  
<223> Hexa-Histidine (His) peptide fused to serine (Ser) at its N'

<400> 5

Ser His His His His His  
1 5

<210> 6  
<211> 53  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding Hexa-histidine fused to the N-termin  
us of Zucchini Yellow Mosaic Virus coat protein gene

<400> 6  
cagctgcagt cacaccatca ccatcaccat tcaggcactc agccaaactgt ggc 53

<210> 7  
<211> 55  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding Hexa-histidine fused to the N-terminus of Zucchini Yellow Mosaic Virus coat protein gene of which the N' terminal 8 amino acids were deleted

<400> 7  
cagctgcagt cacaccatca ccatcaccat gatactggag ctacaaagaa agaag 55

<210> 8  
<211> 45  
<212> DNA  
<213> Homo sapiens

<400> 8  
tcagcatcag agcagaagct catttcagag gaggatctcg gatcc 45

<210> 9  
<211> 15  
<212> PRT  
<213> Homo sapiens

<400> 9

Ser Ala Ser Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Gly Ser  
1 5 10 15

<210> 10  
<211> 77  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGI I) coat protein gene

<400> 10  
cagctgcagt cagcatcaga gcagaagctc atttcagagg aggatctcg 60  
atcctcaggc  
actcagccaa ctgtggc 77

<210> 11  
<211> 82  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 8 amino acids were deleted

cids were deleted

<400> 11  
cagctgcagt cagcatcaga gcagaagctc atttcagagg aggatctcg atccgatact 60  
ggagctacaa agaaagataa ag 82

<210> 12  
<211> 81  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 13 amino acids were deleted

<400> 12  
cagctgcagt cagcatcaga gcagaagctc atttcagagg aggatctcg atccaagaaa 60  
gataaagaag atgacaaagg g 81

<210> 13  
<211> 31  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 18 amino acids were deleted

<400> 13  
cgcgatccg atgacaaagg gaaaaacaag g 31

<210> 14  
<211> 30  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 23 amino acids were deleted

<400> 14  
ctcgatcca acaaggatgt tacaggctcc 30

<210> 15  
<211> 27  
<212> DNA  
<213> Artificial

<220>

<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 28 amino acids were deleted

<400> 15

cgcggatccg gctccggctc aagttag

27

<210> 16

<211> 30

<212> DNA

<213> Artificial

<220>

<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 33 amino acids were deleted

<400> 16

cgcggatccg agaaaacagt ggcagctgtc

30

<210> 17

<211> 28

<212> DNA

<213> Artificial

<220>

<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 38 amino acids were deleted

<400> 17

cgcggatccg ctgtcacgaa ggacaagg

28

<210> 18

<211> 33

<212> DNA

<213> Artificial

<220>

<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 43 amino acids were deleted

<400> 18

cgcggatcca aggtatgtaaa tgctggttct cat

33

<210> 19

<211> 30

<212> DNA

<213> Artificial

<220>

<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 43 amino acids were deleted

uman c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 48 amino acids were deleted

<400> 19  
ctcgatccg gttctcatgg gaaaattgtg 30

<210> 20  
<211> 51  
<212> DNA  
<213> Foot-and-mouth disease virus

<400> 20  
agtgtgagag gagatcttca agtgcttgca cgaaaaggcag caagaccact t 51

<210> 21  
<211> 17  
<212> PRT  
<213> Foot-and-mouth disease virus

<400> 21

Ser Val Arg Gly Asp Leu Gln Val Leu Ala Arg Lys Ala Ala Arg Pro  
1 5 10 15

Leu

<210> 22  
<211> 87  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from the Foot and Mouse disease Virus (FMDV) coat protein epitope fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which the N' terminal 13 amino acids were deleted

<400> 22  
cagctgcagt ccgtgagagg agatcttcaa gtgcttgac gaaaaggcagc aagaccactt 60  
aagaaaagata aagaagatga caaagg 87

<210> 23  
<211> 83  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from the Foot and Mouse disease Virus (FMDV) coat protein epitope fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene

<400> 23  
cagctgcaga gtgtgagagg agatcttcaa gtgcttgac gaaaaggcagc aagaccactt 60

tcagggactc agccaactgt ggc

83

<210> 24  
<211> 84  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of FMDV coat protein epitope fused to N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene of which N' terminal 13 aa's were deleted

<400> 24  
cgcgatccg tgagaggaga tcttcaagtg cttgcacgaa aagcagcaag accacttaag 60  
aaagataaaag aagatgacaa aggg 84

<210> 25  
<211> 33  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the Zucchini Yellow Mosaic Virus (ZYMV-AGII) N1a protease motif fused to the N-terminus of ZYMV (AGI I) coat protein gene of which the N' terminal 33 amino acids were deleted

<400> 25  
cagctgcagt ccgagaaaac agtggcagct gtc 33

<210> 26  
<211> 34  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the Zucchini Yellow Mosaic Virus (ZYMV-AGII) N1a protease motif fused to the N-terminus of ZYMV (AGI I) coat protein gene of which the N' terminal 8 amino acids were deleted

<400> 26  
cagctgcagt ccgacactgg agccacaaag aaag 34

<210> 27  
<211> 37  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the Zucchini Yellow Mosaic Virus (ZYMV-AGII) N1a protease motif fused to the N-terminus of ZYMV (AGII) coat protein gene of which the N' terminal 13 amino acids were deleted

<400> 27  
cagctgcagt ccaagaaaga caaagaagat gacaaag 37

<210> 28  
<211> 24  
<212> DNA  
<213> Gallus gallus

<400> 28  
tccattattta atttcgaaaa gttg 24

<210> 29  
<211> 8  
<212> PRT  
<213> Gallus gallus

<400> 29  
Ser Ile Ile Asn Phe Glu Lys Leu  
1 5

<210> 30  
<211> 56  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from the Ovalbum in residues 257-264 fused to the N-terminus of Zucchini Yellow Mosaic Virus (AGII) coat protein gene

<400> 30  
cagctgcagt ccattattaa tttcgaaaaag ttgtcaggca ctcagccaaac tgtggc 56

<210> 31  
<211> 33  
<212> DNA  
<213> Artificial

<220>  
<223> Nucleotide sequence encoding the peptide derived from a partial Human c-Myc-tag fused to the N-terminus of Zucchini Yellow Mosaic Virus coat protein gene of which the N' terminal 33 amino acids were deleted

<400> 31  
cagctgcagt ccgagaaaaac agtggcagct gtc 33

<210> 32  
<211> 22  
<212> DNA  
<213> Zucchini yellow mosaic virus

<400> 32  
agctccatac atagctgaga ca 22

<210> 33  
<211> 20  
<212> DNA  
<213> Zucchini yellow mosaic virus

<400> 33  
tggttgaacc aagaggcgaa

20